DENON

PERSONAL COMPONENT SYSTEM

MODEL NO. D-90

UNIT No. UDRA-90 (Stereo Receiver)
UNIT No. UDR-90 (Cassette Tape Deck)
UNIT No. UCD-90 (Compact Disc Player)

OPERATING INSTRUCTIONS
BEDIENUNGSANLEITUNG
MODE D'EMPLOI
ISTRUZIONI PER L'USO

COMPACT disc DIGITAL AUDIO

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Check that the following parts are included in the package aside from the main unit:

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1 MAIN FEATURES

- **RDS reception (FM only)**
  RDS programs can be easily received (FM only).
- AM/FM 30-station random preset tuner
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 30 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B and C NR circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on function**
  This function switches on the power with just a press of the PRESET CALL and CD or cassette deck play button. The power also turns on automatically when the PRESET button and the number buttons in the tuner section of the remote control unit are pressed.

2 BEFORE USING

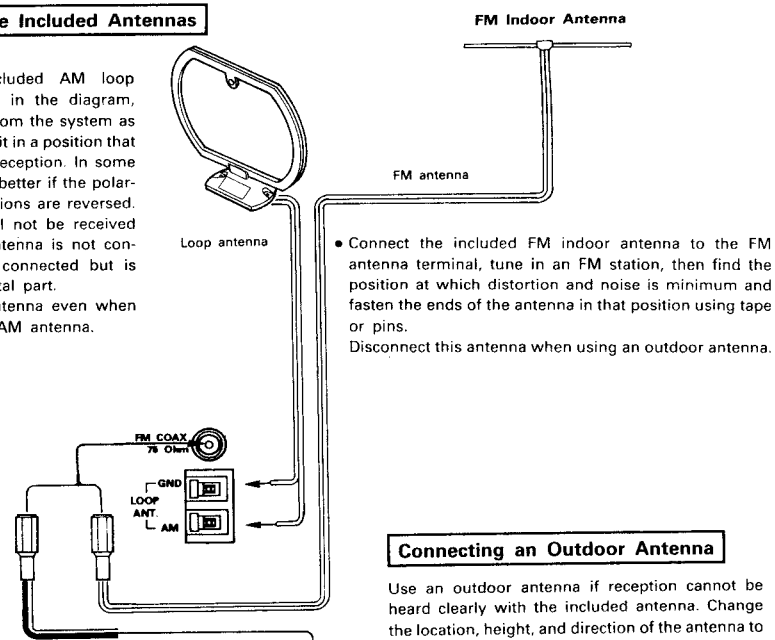
Note the following points before using the D-90.

- **Moving the system**
  To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. Failing to do so may result in scratched CDs.
- **Before switching on the power**
  Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since this may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

3 ANTENNA CONNECTIONS

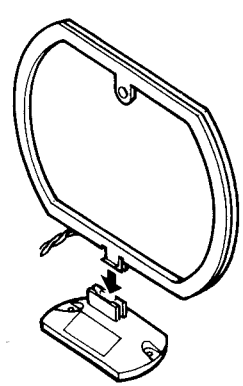
Connecting the Included Antennas

AM Loop Antenna
Assemble the included AM loop antenna as shown in the diagram, separate it as far from the system as possible, and place it in a position that provides the best reception. In some cases, reception is better if the polarities of the connections are reversed.
AM broadcasts will not be received well if the loop antenna is not connected or if it is connected but is located near a metal part.
Attach the loop antenna even when using an outdoor AM antenna.



- Connect the included FM indoor antenna to the FM antenna terminal, tune in an FM station, then find the position at which distortion and noise is minimum and fasten the ends of the antenna in that position using tape or pins.
  Disconnect this antenna when using an outdoor antenna.

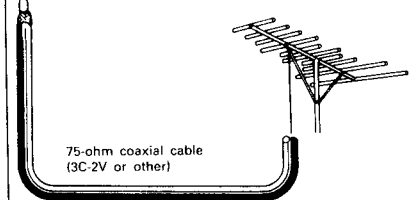
Assembling the Loop Antenna



- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.
- Separate the FM and AM antenna wires from the system connector wires.

Connecting an Outdoor Antenna

Use an outdoor antenna if reception cannot be heard clearly with the included antenna. Change the location, height, and direction of the antenna to find the position of best reception, then fix the antenna in that position.



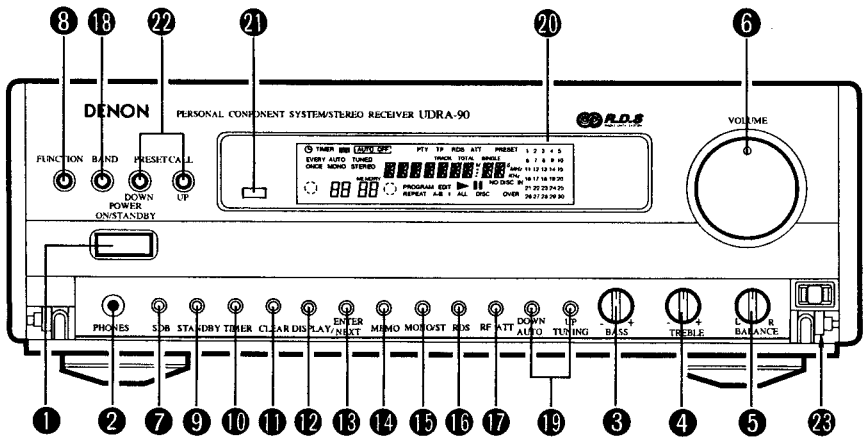
- Connect the outdoor antenna using 75-ohm coaxial cable. This will help shield the antenna from external noise.

• Places for Installing Outdoor Antennas

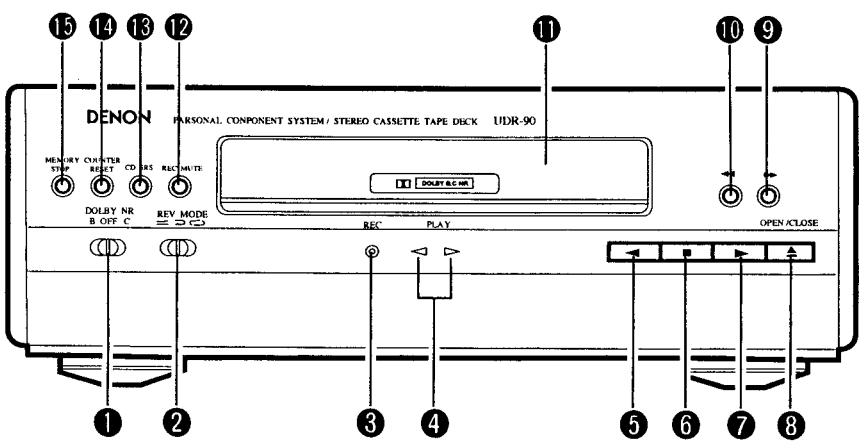
- Install the outdoor antenna facing a broadcast station's transmission antenna.
  When surrounded by buildings or hills, place the antenna in the location which provides best reception and try changing the direction of the antenna to obtain optimum reception.
- Do not install the antenna under power lines.
  It is extremely dangerous for the antenna to come into contact with a power line.
- Install away from roads and train tracks to prevent noise from cars and trains.
- Do not install the antenna too high, as it may be hit by lightning.

FRONT PANEL/FRONTPLATTE/PANNEAU AVANT/PANNELLO ANTERIORE

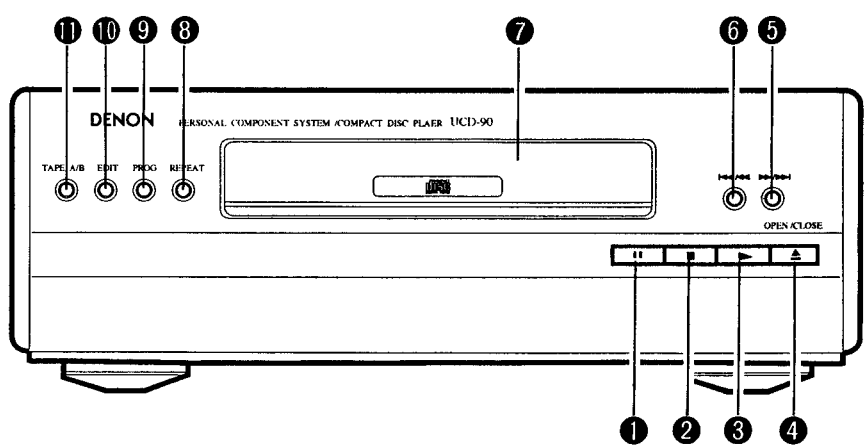
RECEIVER
RECEIVER
RECEPTEUR
RICEVITORE



CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE

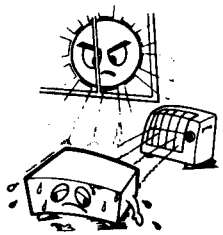


CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE

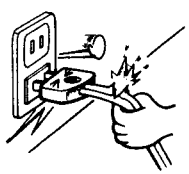


- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- *Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.*
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.

NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION / NOTE SULL'USO

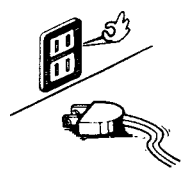


- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.

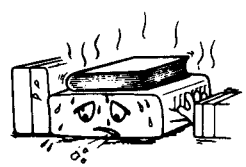


- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.

- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.

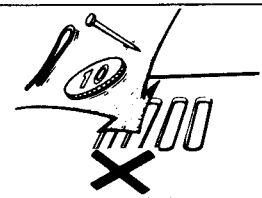


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.

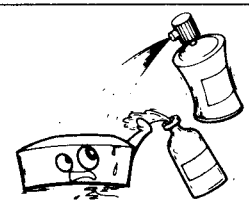


*(For sets with ventilation holes)

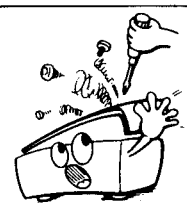
- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerat kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto é inserito all'interno dell'unità.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.



- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerat auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.

CAUTION / VORSICHT / ATTENTION / AVVISO

- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.
- Si de la fumée sort de la chaîne ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocate immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

"SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

•NUR FÜR EUROPÄISCHE MODELLE

Konformitätserklärung

Die DENON Electronic GmbH
Halskestraße 32
40880 Ratingen

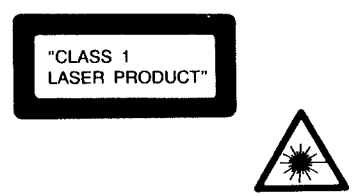
Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING– OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.



4 CONNECTIONS

CAUTION

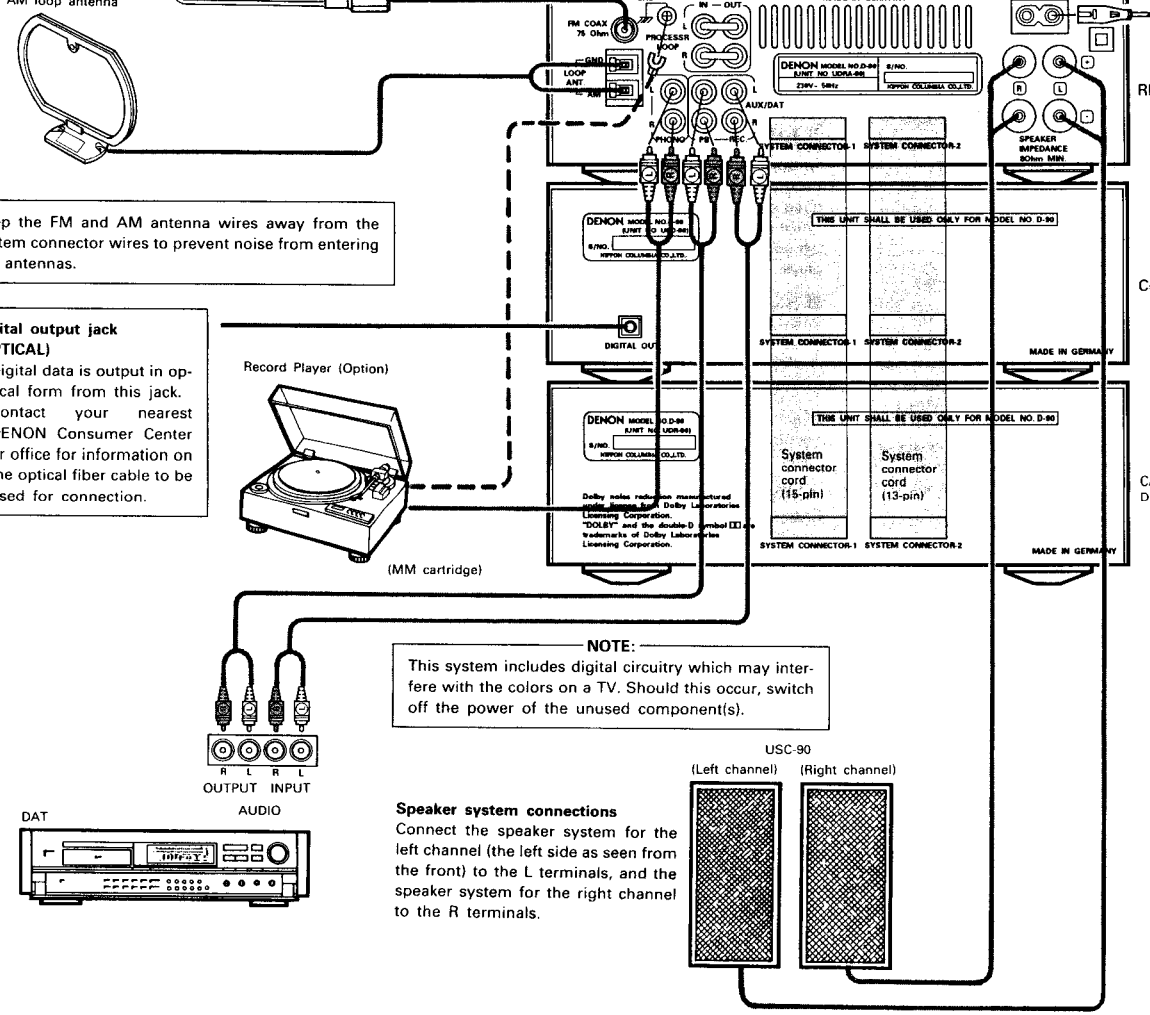
Plug the included AC power cord securely into the inlet socket in the receiver.

Power plug
AC 230 V 50 Hz,
AC 240 V 50 Hz (for U.K. model)
(Plug into a power outlet.)

Power cord
(for U.K. model)

FM antenna

AM loop antenna



Keep the FM and AM antenna wires away from the system connector wires to prevent noise from entering the antennas.

Digital output jack (OPTICAL)
- Digital data is output in optical form from this jack.
- Contact your nearest DENON Consumer Center or office for information on the optical fiber cable to be used for connection.

Record Player (Option)

(MM cartridge)

R L R L
OUTPUT INPUT
AUDIO

DAT

NOTE:

This system includes digital circuitry which may interfere with the colors on a TV. Should this occur, switch off the power of the unused component(s).

USC-90
(Left channel) (Right channel)

Speaker system connections
Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, and the speaker system for the right channel to the R terminals.

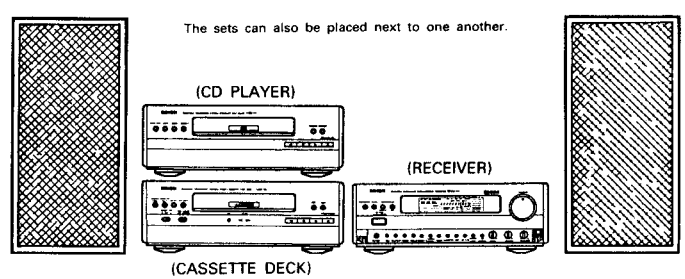
Connecting the System Connector Cord

When connecting the system connector cord, press on the center of the connector plug until you hear a click.
When disconnecting the system connector cord, press the sides of the connector plug towards the middle and pull.

Note that disconnecting by pulling on the cord can damage it.

- Do not plug the power cord into the outlet until all connections have been completed. Connect properly as illustrated in the diagram.
- Check the left and right channels, then properly connect the left speaker's terminals to the amplifier's L terminals and the right speaker's terminals to the amplifier's R terminals.
- Insert the plugs securely. Incomplete connections can cause noise.
- When the power cord has been disconnected from the power outlet, wait about 5 seconds before plugging it back in.
- Note that grouping connection cords together with power cords or setting them near power transformers can cause hum or other noise.
- Note that if the input jacks selected with the FUNCTION button are open (if a component is not connected), there might be leakage of the reproduced sound of a component connected to another set of input jacks.

The sets can also be placed next to one another.



CAUTION:

System operation is not possible and the power cannot be turned on and off unless all system connector cords, speaker cords and pin-plug cords are connected.

5 PART NAMES AND FUNCTIONS

RECEIVER

❶ **POWER ON/STANDBY switch**
When pressed once, the power is turned on and the display lights. Also, this power switch can be used to turn the power of all the units on and off.

❷ **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.

❸ **BASS control**
Use this control to adjust the bass.

❹ **TREBLE control**
Use this control to adjust the treble.

❺ **BALANCE control**
Use this control to adjust the balance of the volume between the left and right channels. The volume is the same for the left and right channels when the control is at the center.

❻ **VOLUME control**
This control adjusts the overall volume. Turn clockwise (↷) to increase the volume, counterclockwise (↶) to decrease it.

❼ **SDB (Super Dynamic Bass) button**
Press this button for more powerful bass sound.

❽ **FUNCTION button**
Use this to select the program source.
The selection changes in the order of TUNER, TAPE, CD, AUX and PHONO.

NOTE: The auto function serves to automatically switch the function when the operation buttons are pressed on each unit.
Tuner: UP or DOWN button of PRESET CALL, and BAND button
CD: Play button (▶)
Deck: Play buttons (▶ and ◀)
(Note that the auto function will not operate unless a tape is loaded in the deck.)

❾ **STANDBY button**
Press this button to cause the timer to operate at the set time. When the timer has been set, pressing this button will light up the display's timer standby indicator (◷), and pressing it again will switch off the standby indicator. The timer will not function when the standby indicator is off.

❿ **TIMER button**
This is used to set the timer.

⓫ **CLEAR button**
This button is used to change the current time setting or the contents of the set timer.

⓬ **DISPLAY button**
Use this switch to switch between the function and time display. For example, when the function is set to the tuner, the display switches between the reception frequency and time.
When RDS stations or stations for which you have written characters yourself and stored them in the memory are tuned in, press this button once to display the frequency, then press again to display the time.

⓭ **ENTER/NEXT button**
This is used when setting the timer, setting the current time, and when advancing to the next operation.

⓮ **MEMO button**
This button is used when presetting FM and AM stations.

⓯ **MONO/ST**
(FM Stereo mute/mono) button
This button will not function when receiving AM broadcasts.
(For FM reception)
AUTO (mute): Use this mode to receive FM broadcasts in stereo.
("AUTO" appears on the display.) The muting circuit is activated to cut the hiss noise between stations.
MONO: In this mode, FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.

⓰ **RDS button**
Use this button to automatically tune to stations using the radio data system.

⓱ **RF ATT button**
Use this to select the FM sensitivity, local or DX.

⓲ **BAND (FM/AM) button**
With each press, the band is switched in the order of FM, AM, FM and so on.

⓳ **AUTO TUNING UP and DOWN buttons**
Use these to tune in FM or AM stations and when setting the time and timer.

⓴ **DISPLAY**
The display indicates a wide variety of information including: functions and SDB of the amplifier, frequency and reception conditions of the tuner, number of tracks and time of the CD, and the counter of the tape deck.

㉑ **Remote control sensor**
The remote control unit is pointed toward this sensor and operated.

㉒ **PRESET CALL UP and DOWN buttons**
Use these to tune in preset stations.
When this button is pressed in the standby condition, the power is automatically switched on.

㉓ **Trap Door**
Press the right edge to open the door.
To close it, press on the right dege. A click is heard to indicate that the door is closed.

CASSETTE DECK

❶ **DOLBY NR selection switch**
Use this switch to select the Dolby NR mode: off, B type or C type. During playback, set this switch to the same mode in which the tape was recorded.

❷ **REV MODE switch**
Use this switch to set the reverse mode to one of the following modes: ⇄ (single side mode), ⇉ (two-side mode), or ↻ (continuous mode).
Refer to Page 16 for details.

❸ **REC LED**
This LED lights in the recording mode.

❹ **PLAY LEDs**
This LED lights in the play mode.

❺ **◀ (reverse play) button**
Press this button to begin playback in the reverse direction.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

❻ **■ (stop) button**
Press this button to stop the moving tape.

❼ **▶ (forward play) button**
Press this button to begin playback in the forward direction.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

❽ **▲ OPEN/CLOSE button**
Press this button to open and close the cassette tray.
The button also works in the standby condition.
When this button is pressed in the standby condition, the power is automatically switched on.

❾ **▶▶ (fast-forward) button**
Press this button to fast forward the tape. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

❿ **◀◀ (rewind) button**
Press this button to rewind the tape. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

⓫ **Cassette tray**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

⓬ **REC MUTE (recording) button**
To record, press the REC MUTE button (hold it in for at least 0.5 seconds), then press the ▶ play button only. If only the REC MUTE button is pressed, the deck is set to the recording pause mode. If this button is pressed again, or pressed during recording, the recording mute mode is set for approximately 5 seconds, after which the deck is set to the recording pause mode.

Recording pause mode
When the play button of the CD player is pressed in the recording pause mode, the CD begins to be recorded.

⓭ **CD SRS (CD synchronized recording system) button**
Use this button for simple CD synchronized recording. Refer to Page 18.

⓮ **COUNTER RESET button**
Press this button to reset the tape counter on the tuner unit's display to "0000".

⓯ **MEMORY STOP button**
When this button is pressed and "MEMORY" is displayed on the receiver unit's display, when the ▶▶ or ◀◀ button is pressed the tape automatically stops at the point where the counter reads "0000".
(The search operation is performed if the ▶▶ or ◀◀ button is pressed during playback, so first press the STOP button, then press the ▶▶ or ◀◀ button.)

NOTE:
- After the power cord is plugged into an outlet, a mechanical sound is produced from the cassette deck when the power switch is pressed on the first time only. This is the sound of the cassette mechanism being set to the proper operating position, and is not a problem with the deck.

CD PLAYER

❶ **II Pause button**
Press this button to stop CD play temporarily.
Press the play button to resume CD play.

❷ **■ Stop button**
Press this button to stop CD play.

❸ **▶ Play button**
Press this button to start playing the disc. If pressed when the disc tray is open, the disc tray closes and playback begins. Pressing this button in the standby mode automatically switches on the power and plays the disc.

❹ **▲ OPEN/CLOSE button**
Press this button to open the disc tray. Press once to open the disc tray forward, then press again to close the disc tray. This button also operates in the standby mode.

❺ **▶▶ ▶▶I (automatic/manual search forward button)**
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play, stop, or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
* The automatic search function is set if button ❺ or ❻ is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.
* Buttons ❺ and ❻ do not function in the pause mode.

❻ **I◀◀ ◀◀ (automatic/manual search backward button)**
Press this button to move the pickup back to the beginning of the desired track.
Press in the play, stop, or pause mode to move back a number of tracks equal to the number of times the button is pressed.

❼ **Disc tray**
Compact discs are loaded to the disc tray.

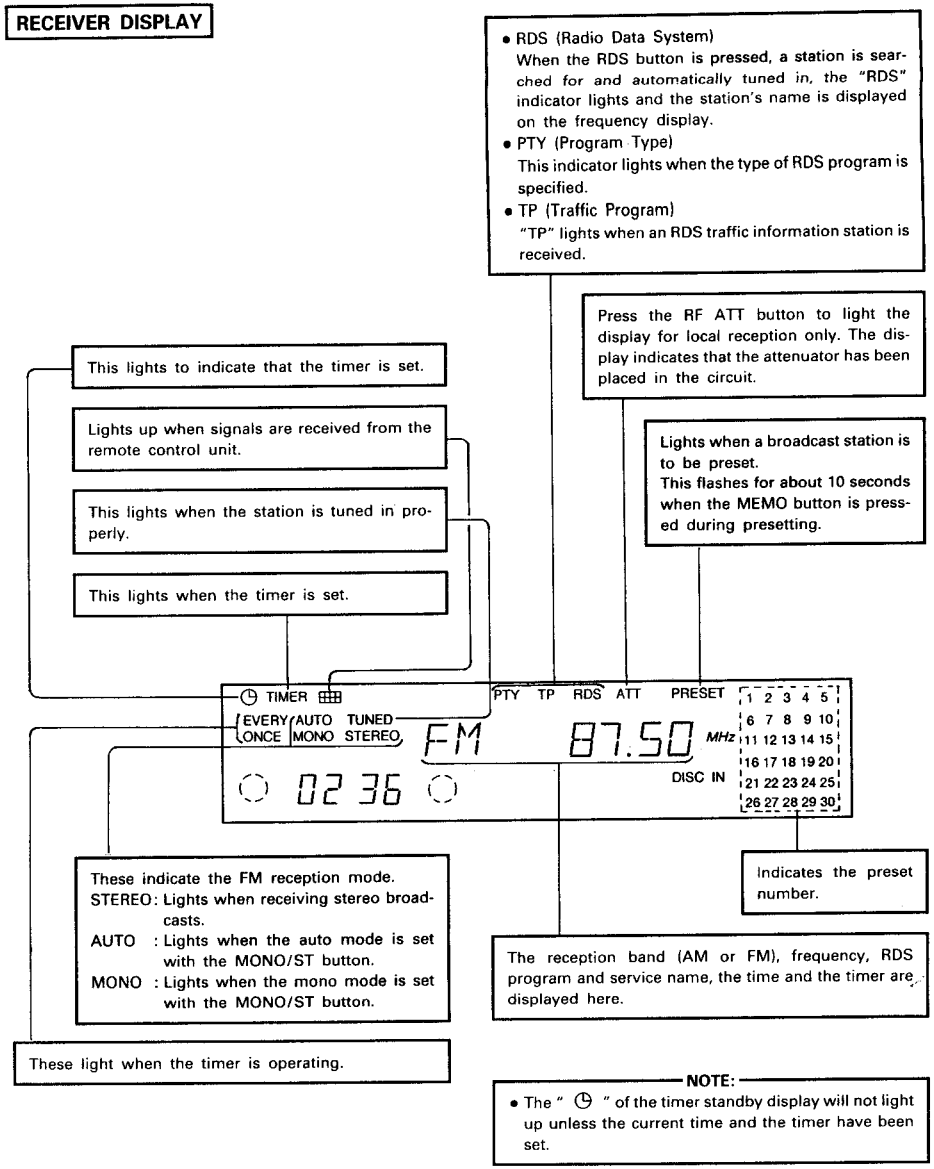
❽ **REPEAT button**
Press this button for repeat play.

❾ **PROGRAM Button**
Use this button to play the desired tracks in the order you wish.

❿ **EDIT button**
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the length of the tape).

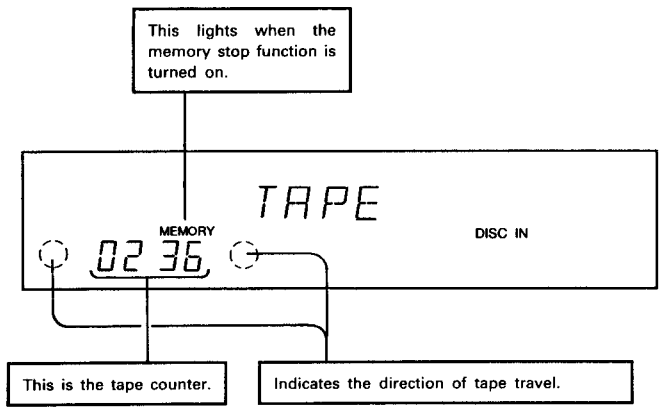
⓫ **TAPE A/B button**
Press this button during editing to switch the display between the display of program contents for tape side A and the display for tape side B.

RECEIVER DISPLAY


• RDS (Radio Data System)
When the RDS button is pressed, a station is searched for and automatically tuned in, the "RDS" indicator lights and the station's name is displayed on the frequency display.
• PTY (Program Type)
This indicator lights when the type of RDS program is specified.
• TP (Traffic Program)
"TP" lights when an RDS traffic information station is received.
Press the RF ATT button to light the display for local reception only. The display indicates that the attenuator has been placed in the circuit.
Lights when a broadcast station is to be preset.
This flashes for about 10 seconds when the MEMO button is pressed during presetting.
This lights to indicate that the timer is set.
Lights up when signals are received from the remote control unit.
This lights when the station is tuned in properly.
This lights when the timer is set.
TIMER
EVERY ONCE
AUTO MONO
TUNED STEREO
PTY TP RDS ATT PRESET
FM
87.50
MHz
DISC IN
0236
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
These indicate the FM reception mode.
STEREO: Lights when receiving stereo broadcasts.
AUTO : Lights when the auto mode is set with the MONO/ST button.
MONO : Lights when the mono mode is set with the MONO/ST button.
Indicates the preset number.
The reception band (AM or FM), frequency, RDS program and service name, the time and the timer are displayed here.
These light when the timer is operating.
NOTE:
• The " ◷ " of the timer standby display will not light up unless the current time and the timer have been set.

CASSETTE DECK DISPLAY

• This is displayed on the display of the receiver unit (UDRA-90).



USING THE TAPE COUNTER

- The counter is reset to "0000" when the tape is ejected and loaded, and when the COUNTER RESET button is pressed.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playback back a tape will be convenient when you search for a portion of the tape you would like to listen to or when you search for the next portion you would like to record.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.

CD PLAYER DISPLAY

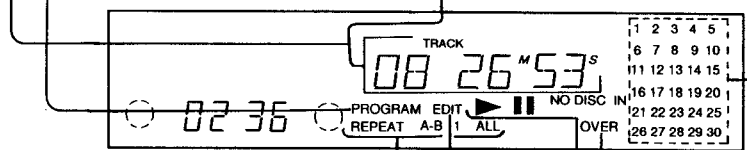
• This is displayed on the display of the receiver unit (UDRA-90).

Track number display
00 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- [[or]] is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

Time display
0000 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The elapsed playing time is displayed in the stop mode.
- The elapsed time for the track currently playing is displayed in the play and pause modes.
- The elapsed time for the programmed tracks is displayed in the program mode.

PROGRAM lights during the programmed selection mode.

Tape type and remaining time display
During the editing operation, C 00 lights and the tape time is displayed.



During the editing operation, EDIT A TAPE lights up, the remaining time for side A of the tape is indicated on the time section of the display, the track numbers set for side A light on the calendar section of the display, while the track numbers set for side B flash. When the TAPE A/B button is pressed, A goes off, B lights, and the remaining time and track numbers set for side B are indicated in the same way.

This lights when there are 31 or more tracks on the disc.

▶ PLAY lights when the disc is playing, and ⏸ PAUSE lights when in the pause mode.

The indicators switch as follows when the REPEAT button is pressed in the play mode:
REPEAT 1: REPEAT 1 (single track repeat) The repeated track number lights on the music calendar.
REPEAT ALL: REPEAT ALL (all tracks repeat) The track numbers of the tracks on the disc light.
Third press: REPEAT A-
Fourth press: REPEAT A-B
Fifth press: No display
- When track 31 or higher is repeated in 1-track repeat, the TRACK number flashes.

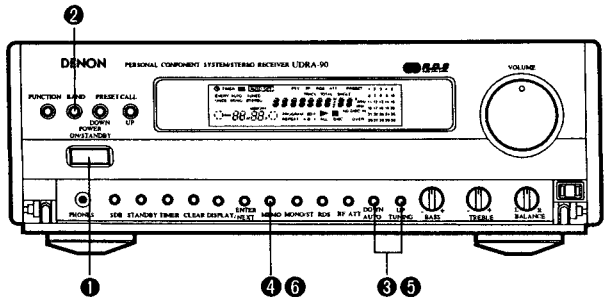
Music calendar display
This indicates the track numbers on the disc to a maximum of 30.
The track numbers go off after the corresponding tracks are played.
In the program mode, the track numbers of the programmed tracks are indicated to a maximum of 30.
All track numbers from 1 to 30 light when the disc data cannot be read properly.

- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

6 LISTENING TO RADIO BROADCASTS

(Check that connections are proper, referring to Pages 5)

TUNING



Example: Tuning to 87.50 MHz, FM

1	Set the VOLUME control to the minimum position, then press the POWER button of the receiver.	POWER ON/STANDBY	
2	Select the FM band with the BAND button.	BAND	Set to FM. → FM 90.00 MHz
3	Use the UP and DOWN buttons to set the frequency to 87.50 MHz, located in the trap door.	DOWN UP AUTO TUNING	Lights up when the station is tuned in. → TUNED FM 87.50 MHz

Presetting FM and AM Stations

Example: Presetting the (currently tuned) FM 87.50 MHz to preset number 3

4	Press the MEMO button. "PRESET" flashes for 10 seconds.	MEMO	TUNED FM 87.50 MHz PRESET — Flashes
5	Use the AUTO TUNING UP and DOWN buttons to call up the number to which you want to preset the station. Or, directly press the number buttons on the remote control unit. The preset number will flash.	DOWN UP AUTO TUNING	TUNED FM 87.50 MHz PRESET 3 — Flashes
6	Press the MEMO button while "PRESET" is flashing.	MEMO	TUNED FM 87.50 MHz PRESET 3 — set the preset number 3.

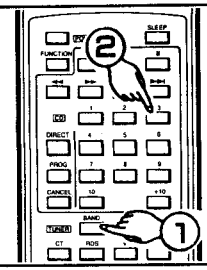
Up to 30 FM and AM stations can be preset at random using this procedure.
Note: The character writing mode is set if the MEMO button is pressed in for over 3 seconds.

Auto Tuning

- When the TUNING buttons are pressed, the frequency changes in steps of 50 kHz for FM, 9 kHz for AM.
- If the TUNING UP or DOWN button is held in for more than 0.5 second, the frequency continues to change when the button is released. The next station is tuned in automatically and the tuning stops there. The auto tuning might not stop when a weak signal is received at the antenna. At this time the TUNED display will not light. To stop the auto tuning, press the UP or DOWN button again.

Listening to Preset Stations

Example: Listening to the FM station preset at number 3

1	Press the TUNER BAND button on the remote control unit.		TUNED FM 87.50 MHz PRESET 3
2	Press button "3" on the remote control unit.		

FM Stereo Reception

- When the MONO/ST button is pressed (which lights the AUTO indicators) and an FM stereo broadcast is received, the STEREO indicator lights and the station is received in stereo. If the MONO indicator is lit by pressing the MONO/ST button, the STEREO indicator goes off and the station is received in monaural.

Notes on Presetting

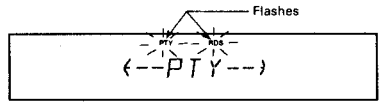
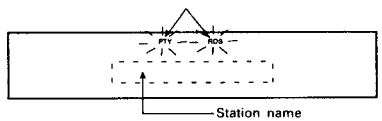
- When an FM station is preset, the auto or monaural mode is also set, so check the display before presetting the station.
- If a station is preset to a number at which another station has previously been preset, the previous station is cleared and the new station is preset.
- If the power cord is unplugged, the preset memory is not cleared immediately, but will be cleared if the cord is left unplugged over a long period. Should this happen, preset the stations again.

Receiving RDS broadcasts (FM only)

1	Press the BAND button and set the FM band.	FM 87.50 MHz
2	Press the RDS button once.	Flashes — RDS — (--RDS--) "RDS" blinks
3	Press the AUTO TUNING UP or DOWN button.	Flashes — RDS — FM 87.50 MHz "RDS" blinks
4	The station is tuned in.	"RDS" lights after 5 seconds of flashing. RDS — Station name. Once the station is tuned in, "RDS" flashes for 5 seconds and the program service name is displayed. When another station is desired, press the UP or DOWN button of AUTO TUNING while "RDS" is flashing and start the tuning.

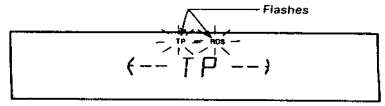
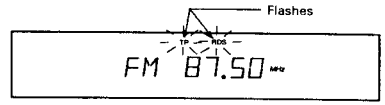
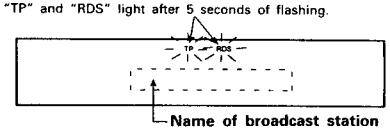
NOTE: If no RDS station is found, " NO RDS " is displayed.

PTY Search

1	Press the RDS button twice.	 ("PTY" and "RDS" flash, and "←--PTY--→" is displayed.)
2	Press the PRESET CALL UP or DOWN button to select the type of program. (One of the 15 types listed below can be selected.)	
3	Press the AUTO TUNING UP or DOWN button.	
4	The station is tuned in.	"PTY" and "RDS" light after 5 seconds of flashing.  Once the station is tuned in, "RDS" and "PTY" flash for 5 seconds and the program service name is displayed. When the UP or DOWN button of AUTO TUNING is pressed while "RDS" and "PTY" are flashing, tuning is started again.

NOTE: If no program of the specified type is found, "NO PROG" is displayed.

TP Search

1	Press the RDS button 3 times.	
2	Press the UP or DOWN button of AUTO TUNING.	
3	Broadcast reception.	"TP" and "RDS" light after 5 seconds of flashing.  Once the station is tuned in, "RDS" and "TP" flash for 5 seconds and the program service name is displayed. When the UP or DOWN button of AUTO TUNING is pressed while "RDS" and "TP" are flashing, tuning is started again.

NOTE: "NO PROG" is displayed when there is no traffic information broadcast station.

NOTE:

The D-90 is designed so that RDS broadcasts can be received. In some countries and areas, however, no RDS broadcasts are offered.

- "PTY" is a code which identifies the type of program.
- "TP" is a code which identifies the station providing the traffic information.
- "CT" is a signal providing time data in one minute units.
- Some stations which provide RDS broadcasts do not broadcast CT signals, in which case the time display cannot be corrected by pressing the CT button on the remote control unit.

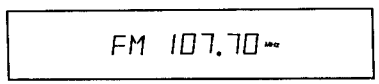
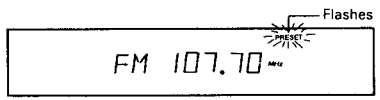
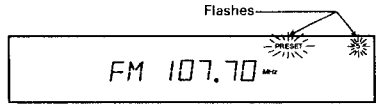
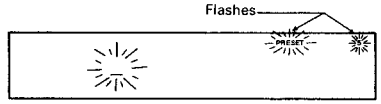
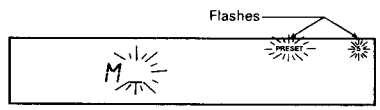
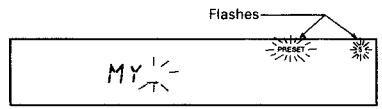
Programs

NEWS	(News)	VARIED	(Varied)
AFFAIRS	(Current Affairs)	POP M	(Pop Music)
INFO	(Information)	ROCK M	(Rock Music)
SPORT	(Sport)	MOR M	(M.O.R. Music)
EDUCATE	(Education)	LIGHT M	(Light Classics)
DRAMA	(Drama)	CLASSICS	(Serious Classics)
CULTURE	(Culture)	OTHER M	(Other Music)
SCIENCE	(Science)		

Writing Characters

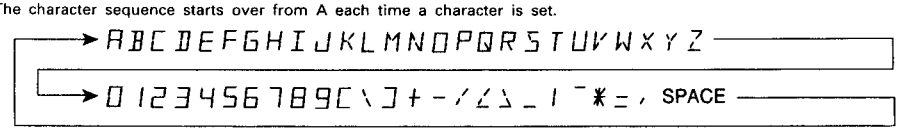
The D-90 includes a function for writing characters.

Example: Writing the characters "MY RADIO" for the station at FM 107.70 MHz and storing this at preset channel 5

1	Use the BAND button and the AUTO TUNING UP and DOWN buttons to display FM 107.70 MHz.	
2	Press the MEMO button for at least 3 seconds so that "PRESET" flashes on the display.	
3	Use the AUTO TUNING UP and DOWN buttons to select preset channel 5.	
4	Press the ENTER/NEXT button. The "–" begins to flash.	
5	Use the AUTO TUNING UP and DOWN buttons to select the character "M", then press the PRESET UP button. The "–" stops flashing, and the "M" in the second place starts flashing.	
6	Use the AUTO TUNING UP and DOWN buttons to select the character "Y", then press the PRESET UP button.	
7	Repeat this procedure to write "MY RADIO", then press the ENTER/EXIT button. "PRESET" stops flashing and the character writing mode is cancelled.	

The characters which can be written are shown below.

- The characters change in the direction of the arrow when the PRESET UP button is pressd, in the opposite direction when the PRESET DOWN button is pressed.
- The character sequence starts over from A each time a character is set.



NOTES:

- The cursor can be moved to correct a character by pressing the PRESET button during the character wirting mode.
- If the frequency of the station for which characters have been written is the same as the frequency of a PS broadcasting station, the characters are rewritten by the PS signal.
- Characters can also be written in the same way when in the AM mode.

7 USING THE TIMER

Setting the Timer

- Be sure to set the current time.
- Regular timer: The power can be switched on and off once every day at the same time. (Wake-up music)
- Sleep timer: The power can be set to turn off in up to 60 minutes in steps of 10 minutes using the remote control unit. (Bedtime music)

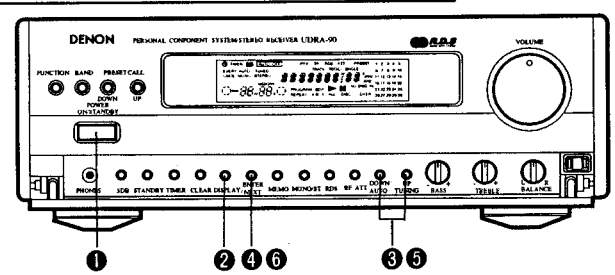
Be sure to preset stations before setting the timer.
Refer to "Presetting FM and AM Stations" on Page 9.

- Turn the standby switch off when not using the timer.

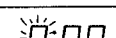
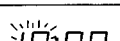
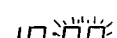
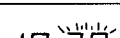
Power Failure

Should a power failure occur or if the power cord becomes unplugged from the power outlet, " 00:00 " will flash on the time display. If this happens, reset the current time.
(Reset the current time and timer settings. If " 00:00 " was displayed, also reset the stations preset on the tuner.)
The standby mark starts flashing if there is a power failure or the power cord is unplugged while the standby mark is lit. If this happens, reset the time and the timer. (If the display reads "00:0C", also reset the tuner's preset channels.)
To make the standby mark stop flashing, press the TIMER button, then press the TIMER or CLEAR button while " FUNC " is displayed.

Setting the Current Time (A 24-hour clock display is used.)

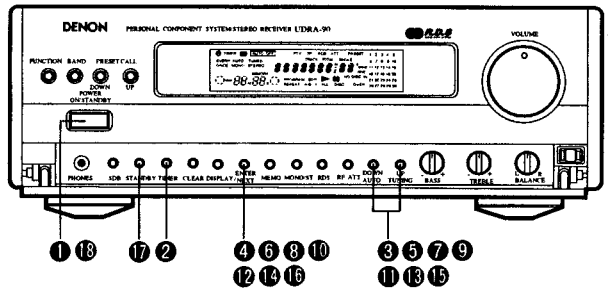


Example: Setting to 19:30 (7:30 p.m.)

1	Press the POWER button of the receiver.		
2	Depress the DISPLAY button located in the trap door for 3 seconds or longer.		 The hour's place flashes. (All places flash if the time has already been set.)
3	Set the hours with the UP and DOWN buttons.		 The set places flashes.
4	Press the ENTER/NEXT button.		 The minutes' places flashes.
5	Set the minutes with the UP and DOWN buttons.		 The set places flashes.
6	Press the ENTER/NEXT button at the sound of a time signal. The time display lights steadily and the clock starts keeping the time.		The display lights steadily and the clock starts to count from 0 seconds.

Setting the Timer

(Preset the FM and AM stations in advance)



Example: Setting the timer to turn on at 12:35 and off at 12:56.
90.00 MHz FM is being received on preset number "1".
87.50 MHz FM is set to preset number "3".

1	Press the POWER button.	POWER ON/STANDBY	
2	Press the TIMER button.	TIMER	TIMER
3	Press the UP and DOWN buttons to display "EVERY".	DOWN AUTO TUNING / UP TUNING	TIMER
4	Press the ENTER/NEXT button.	ENTER /NEXT	FUNC
5	Press the UP and DOWN buttons to display "TUNER".	DOWN AUTO TUNING / UP TUNING	TUNER
6	Press the ENTER/NEXT button.	ENTER /NEXT	FM 87.50 P3
7	Use the UP and DOWN buttons to set the preset number 3.	DOWN AUTO TUNING / UP TUNING	0:00
8	Press the ENTER/NEXT button.	ENTER /NEXT	12:00
9	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.	DOWN AUTO TUNING / UP TUNING	12:00
10	Press the ENTER/NEXT button.	ENTER /NEXT	12:00
11	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.	DOWN AUTO TUNING / UP TUNING	12:35
12	Press the ENTER/NEXT button.	ENTER /NEXT	0:00
13	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.	DOWN AUTO TUNING / UP TUNING	12:00
14	Press the ENTER/NEXT button.	ENTER /NEXT	12:00
15	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.	DOWN AUTO TUNING / UP TUNING	12:56
16	Press the ENTER/NEXT button.	ENTER /NEXT	FM 90.00
17	Press the STANDBY button.	STANDBY	FM 90.00 (Lights up. (See NOTE))
18	Press the POWER button.	POWER ON/STANDBY	10.15 ("TIMER ◷" is displayed. / The illumination goes off and the current time is displayed.)

- When the STANDBY button is pressed and the " ◷ " mark is lit, the timer will function at the same times each day.
- To switch off the timer, press the STANDBY button and turn off the " ◷ " mark.

NOTE:

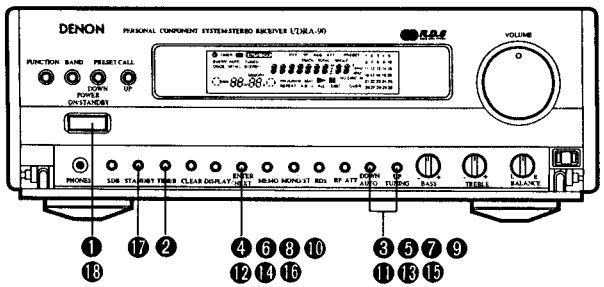
The timer standby mark " ◷ " will not light unless the current timer has been set. Should this be the case, set the current time, then press STANDBY the button.

NOTE:

1) When there is an irregularity in the contents of the display or in the operation, unplug the power cord from the power outlet, then, while pressing down both the DOWN button of AUTO TUNING and the MEMO button at the same time, plug the power cord into the power outlet again.
   All conditions will return to their initial settings and the display will appear normal. It will now be necessary to reset the presets, current time, and the timer setting time.
2) To enable remote control operation of this system, the AC power is always supplied to the system. Even when the POWER button has been switched off, the display of the tuner will continue to be lit dimly.

Setting the Once Timer

(Preset the AM and FM stations in advance)



Example: Setting the timer to turn on at 12:35 and off at 12:56.
522 kHz AM is being received on preset number "2".
1611 kHz AM is set to preset number "15".

1	Press the POWER button.	POWER ON/STANDBY	
2	Press the TIMER button.	TIMER	TIMER
3	Press the DOWN button to display "ONCE".	DOWN AUTO TUNING / UP TUNING	TIMER (Flashes)
4	Press the ENTER/NEXT button.	ENTER / NEXT	FUNC
5	Press the UP and DOWN buttons to display "TUNER".	DOWN AUTO TUNING / UP TUNING	TUNER
6	Press the ENTER/NEXT button.	ENTER / NEXT	AM 1611 P15 (P15 Flashes)
7	Press the UP and DOWN buttons to set the preset number 15.	DOWN AUTO TUNING / UP TUNING	0:00 (Lights up.)
8	Press the ENTER/NEXT button.	ENTER / NEXT	12:00 (Flashes)
9	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.	DOWN AUTO TUNING / UP TUNING	12:00 (Flashes)
10	Press the ENTER/NEXT button.	ENTER / NEXT	12:00 (Flashes)
11	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.	DOWN AUTO TUNING / UP TUNING	12:35 (Flashes)
12	Press the ENTER/NEXT button.	ENTER / NEXT	0:00 (Flashes)
13	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.	DOWN AUTO TUNING / UP TUNING	12:00 (Flashes)
14	Press the ENTER/NEXT button.	ENTER / NEXT	12:00 (Flashes)
15	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.	DOWN AUTO TUNING / UP TUNING	12:56 (Flashes)
16	Press the ENTER/NEXT button.	ENTER / NEXT	AM 522 (PRESET 2)
17	Press the STANDBY button.	STANDBY	AM 522 (Lights up. (See NOTE))
18	Press the POWER button.	POWER ON/STANDBY	10:15 ("TIMER ◷" is displayed. The illumination goes off and the current time is displayed.)

- When the STANDBY button is pressed and the " ◷ " mark is lit, the timer will function one time only.
- To switch off the timer, press the STANDBY button and turn off the " ◷ " mark.

NOTE:

The standby mark " ◷ " will not light unless the current timer has been set. Should this be the case, set the current time, then press the STANDBY button.

Ways to Use the Timer

Example 1: Waking up to the music of a compact disc.

1 EVERYDAY TIMER

1	Press the receiver's POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.	POWER ON/STANDBY, OPEN /CLOSE, OPEN /CLOSE	
2	Press the receiver's TIMER button.	TIMER	Flashes TIMER
3	Press the UP button to display "EVERY".	DOWN AUTO TUNING, UP TUNING	Flashes TIMER
4	Press the ENTER/NEXT button.	ENTER /NEXT	FUNC
5	Press the UP and DOWN buttons of the receiver to display "CD".	DOWN AUTO TUNING, UP TUNING	CD
6	Follow steps 8 to 18 under "Setting the Timer" on Page 12.		

2 ONCE TIMER

1	Press the receiver's POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.	POWER ON/STANDBY, OPEN /CLOSE, OPEN /CLOSE	
2	Press the receiver's TIMER button.	TIMER	Flashes TIMER
3	Press the DOWN button to display "ONCE".	DOWN AUTO TUNING, UP TUNING	Flashes TIMER
4	Press the ENTER/NEXT button.	ENTER /NEXT	FUNC
5	Press the UP and DOWN buttons of the receiver to display "CD".	DOWN AUTO TUNING, UP TUNING	CD
6	Follow steps 8 to 18 under "Setting the Timer" on Page 13.		

Example 2: Waking up to the music of a cassette tape.

1 EVERYDAY TIMER

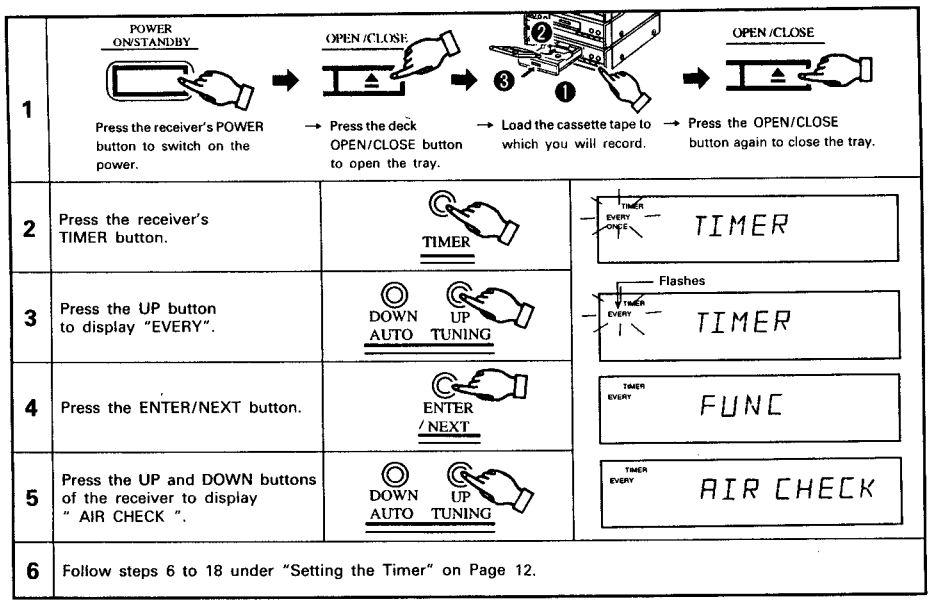
1	Press the receiver's POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.	POWER ON/STANDBY, OPEN /CLOSE, OPEN /CLOSE	
2	Press the receiver's TIMER button.	TIMER	Flashes TIMER
3	Press the UP button to display "EVERY".	DOWN AUTO TUNING, UP TUNING	Flashes TIMER
4	Press the ENTER/NEXT button.	ENTER /NEXT	FUNC
5	Press the UP and DOWN buttons of the receiver to display "TAPE".	DOWN AUTO TUNING, UP TUNING	TAPE
6	Follow steps 8 to 18 under "Setting the Timer" on Page 12.		

2 ONCE TIMER

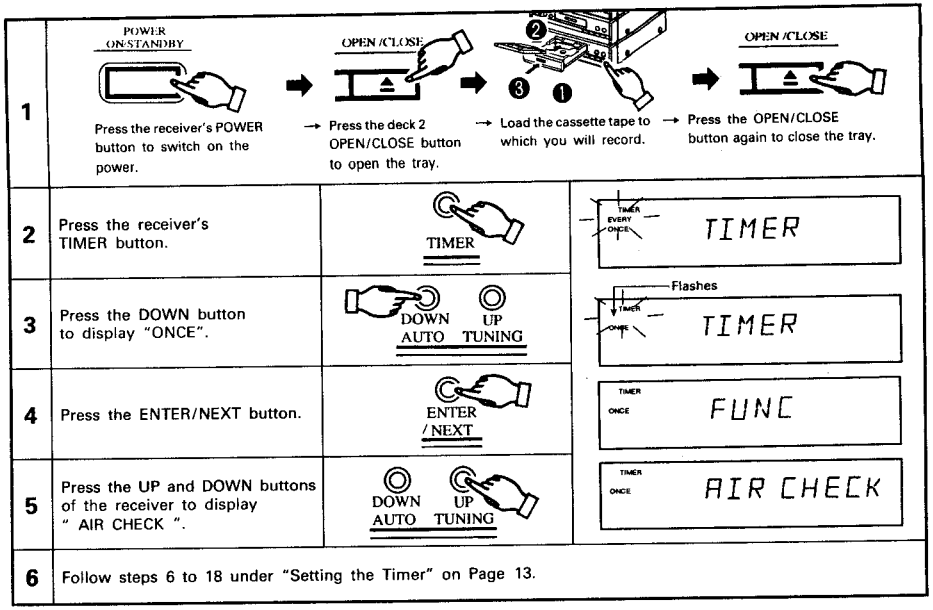
1	Press the receiver's POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.	POWER ON/STANDBY, OPEN /CLOSE, OPEN /CLOSE	
2	Press the receiver's TIMER button.	TIMER	Flashes TIMER
3	Press the DOWN button to display "ONCE".	DOWN AUTO TUNING, UP TUNING	Flashes TIMER
4	Press the ENTER/NEXT button.	ENTER /NEXT	FUNC
5	Press the UP and DOWN buttons of the receiver to display "TAPE".	DOWN AUTO TUNING, UP TUNING	TAPE
6	Follow steps 8 to 18 under "Setting the Timer" on Page 13.		

Example 3: Unattended recording of radio broadcasts ("air checks")

1 EVERYDAY TIMER


1
POWER ON/STANDBY
OPEN/CLOSE
OPEN/CLOSE
Press the receiver's POWER button to switch on the power.
→ Press the deck OPEN/CLOSE button to open the tray.
→ Load the cassette tape to which you will record.
→ Press the OPEN/CLOSE button again to close the tray.
2
Press the receiver's TIMER button.
TIMER
TIMER
3
Press the UP button to display "EVERY".
DOWN AUTO UP TUNING
Flashes
TIMER
4
Press the ENTER/NEXT button.
ENTER /NEXT
FUNC
5
Press the UP and DOWN buttons of the receiver to display " AIR CHECK ".
DOWN AUTO UP TUNING
AIR CHECK
6
Follow steps 6 to 18 under "Setting the Timer" on Page 12.

2 ONCE TIMER


1
POWER ON/STANDBY
OPEN/CLOSE
OPEN/CLOSE
Press the receiver's POWER button to switch on the power.
→ Press the deck 2 OPEN/CLOSE button to open the tray.
→ Load the cassette tape to which you will record.
→ Press the OPEN/CLOSE button again to close the tray.
2
Press the receiver's TIMER button.
TIMER
TIMER
3
Press the DOWN button to display "ONCE".
DOWN AUTO UP TUNING
Flashes
TIMER
4
Press the ENTER/NEXT button.
ENTER /NEXT
FUNC
5
Press the UP and DOWN buttons of the receiver to display " AIR CHECK ".
DOWN AUTO UP TUNING
AIR CHECK
6
Follow steps 6 to 18 under "Setting the Timer" on Page 13.

- Timer recording starts in the direction indicated by the tape deck.
- Check that the tape direction and REV MODE switch settings are as desired.
- The section of leader tape at the beginning of the tape cannot be recorded. To avoid missing the beginning of the recording, forward the tape about 10 seconds.

Checking the Timer Settings

To check the timer settings, turn on the receiver's POWER button, press the TIMER button, select "EVERY" or "ONCE" with the AUTO TUNING UP button, then press the ENTER/NEXT button. The timer start mode, reception band, preset number, on time, and off time are displayed in order each time the ENTER/NEXT button is pressed. One more press returns the display to the reception frequency.

Changing the Timer Settings

When the timer setting operation is repeated, the previous settings are deleted and the new settings are set.

Deleting the Timer Settings

The timer settings can be cleared by pressing the TIMER button, select "EVERY" or "ONCE" with the AUTO TUNING UP button, then press the ENTER/NEXT button and then while " FUNC " is being displayed, pressing the CLEAR button.

Note about the Set Timer

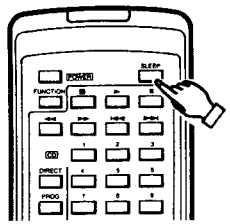
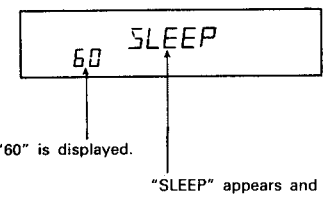
If the set time of the timer is reached while the power is on, the timer settings will take over and there will be a switch to the function that has been set on the timer.

Cancelling the Timer

Press the STANDBY button and the " ◷ " mark will go off.

Setting the Sleep Timer

(Use the remote control unit for these operations.)
Example: Setting the power to switch off in 50 minutes.

	Currently receiving 87.50 MHz, FM.	FM 87.50 MHz	
1	 Press the remote control unit's SLEEP button.	 "60" is displayed. "SLEEP" appears and flashes for 5 seconds.	
2	Press the SLEEP button again while "SLEEP" is flashing.	"50" is displayed, and the frequency display (87.50) reappears after 5 seconds.	The power is switched off after 50 minutes.

- If the sleep timer and regular timer settings overlap, the sleep timer is given priority.
- Do not press the STANDBY button after the power has been switched on with the timer. If this is done, the timer will not function properly.
- If the same time is set for the on time and off time, the power will not be switched on even when the "STANDBY" indicator is lit.
- If the timer is set for an AM or FM station and the on time of the timer is reached while listening to another station, the tuner switches to the station which was set with the timer.

Cancelling the Sleep Timer

- To cancel the timer while it is operating in the sleep mode, press the SLEEP button, and while "SLEEP" is flashing, press the CLEAR button on the receiver.
- Press the SLEEP button repeatedly until the power turns off. This cancels the sleep timer.

8 CASSETTE DECK

Before Recording and Playback

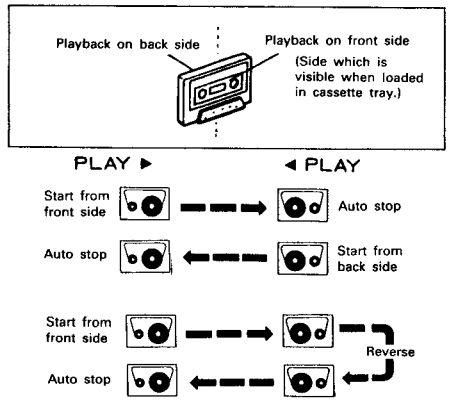
Auto Reverse

This deck is equipped with an auto reverse mechanism, so cassette tapes can be played and recorded on both sides or played continuously without having to turn them over.

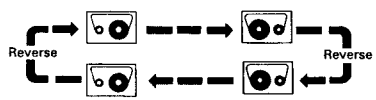
■ Direction of tape travel
This deck has two play buttons, one for the forward direction (front side) and another for the reverse direction (back side). The side being played can be changed during playback by pressing the opposite play button.

■ Reverse mode
Set the reverse mode switch (REV MODE) as follows:

- **Single-side recording/playback mode (⇄)**
  In this position, only the front side or the back side of the cassette tape is played or recorded. (The tape stops automatically when the end of that side is reached.)
- **Two-side recording/playback mode (⊃)**
  In this position, when the end of the front side is reached, recording or playback automatically switches to the back side and continues from there. (The tape stops automatically when the end of the back side is reached.)
- **Continuous playback mode (↻)**
  In this position playback continues until the STOP button is pressed.



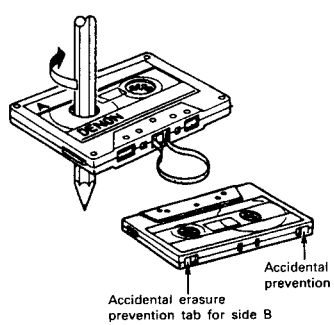
* If you start playing or recording from the back side, the tape will stop automatically at the end of the back side.



* The reverse recording/playback mode (⊃) is set automatically during recording.

Cassette Tapes

■ Handling Precautions
- C-120 cassette tapes
  Avoid using 120-minute cassette tapes, since they have extremely thin tape which tends to become wound onto the capstans or pinch rollers.
- Tape slack
  If the tape is slack, it may become wound onto mechanism parts or otherwise damaged. Take up the slack with a pencil before loading the cassette.



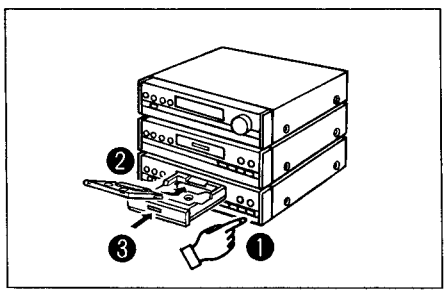
■ Storage Precautions
- Avoid storing in the following places:
  - Hot, humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic fields (TVs, speakers, etc.)
- Store the cassette tape in a case equipped with stoppers to keep the tape from coming slack.

■ Protecting Cassette Tapes From Being Erased Accidentally
- Cassette tapes are equipped with accidental erasure prevention tabs. To protect recorded tapes from being erased accidentally, use a screwdriver, etc., and break these tabs off.
- To record on a cassette tape whose accidental erasure prevention tabs have been broken off, place a pieced of cellophane tape over the hole.

Loading and Unloading Cassette Tapes

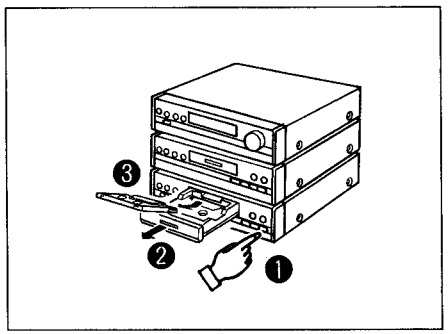
• Loading

❶ Press the OPEN/CLOSE button (⏏) to open the cassette tray.
❷ Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
❸ Press the OPEN/CLOSE button again to close the tray.



• Unloading

❶ Press the STOP button (■).
❷ Press the OPEN/CLOSE button (⏏) to open the cassette tray.
❸ Remove the cassette tape.

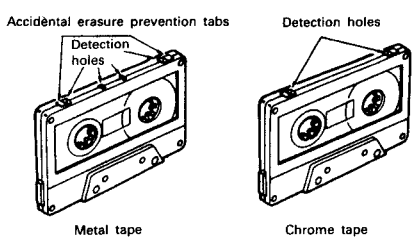


Check the following before recording or playing cassette tapes:
1. Is the head dirty ? ...
The sound quality will be poor if the head is dirty. Refer to Page 23.
2. Are the accidental erasure prevention tabs broken off ? ...
Recording is not possible if these tabs are broken off. Refer to Page 16.

NOTE:
- Load the cassette tape on an angle with the open side facing away from you. Loading it in the opposite direction can cause damage.
- Do not press the OPEN/CLOSE button during playback or recording. Always press the STOP button before pressing the OPEN/CLOSE button.

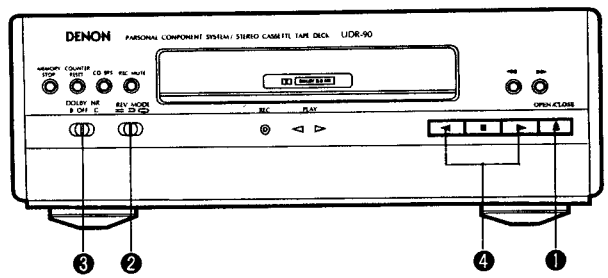
Auto Tape Selector Mechanism

This deck is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to automatically set the recording bias and equalization best suited for that type of tape.
- Do not use ferrichrome tapes.
- Use metal tapes equipped with detection holes. (Use of the old type of metal tape without detection holes will result in the sound having an emphasized treble region.)



9 PLAYING CASSETTE TAPES

(Single Side Playback, Two-Side Playback, and Continuous Playback)



1	Press the POWER button of the receiver, then press the OPEN/CLOSE button and load a recorded tape into the tray. Refer to Page 17.	OPEN/CLOSE
2	Set the REV MODE switch. Refer to Page 16.	REV MODE: Single side playback / Two-side playback / Continuous playback
3	Set the DOLBY NR switch. Refer to Page 6 ❶ (CASSETTE DECK).	DOLBY NR B OFF C — Set to B or C (as indicated on the tape) for tapes recorded with Dolby NR.
4	Press the play button (▶ or ◀).	Playback starts in the direction of the button pressed.

Loading the tape

The tape can be loaded easily by inserting it at an angle.

Removing the tape

The tape can be removed easily by lifting it out toward yourself at an angle.

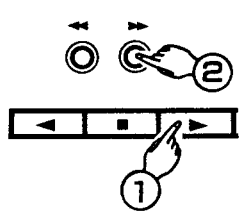
Press the stop button ■ to stop the playback.

Using the MS (Music Search) Function

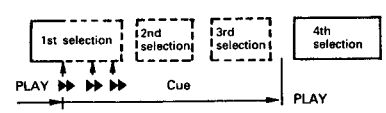
■ Use this function to move to the beginning of the following section or return to the beginning of the current selection.

① Press ▶ or ◀.
② Press ▶▶ or ◀◀.

- In the rewind direction, playback starts from the beginning of the selection which is currently playing, and in the fast-forward direction, playback starts from the beginning of the following selection.



The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.
For example:



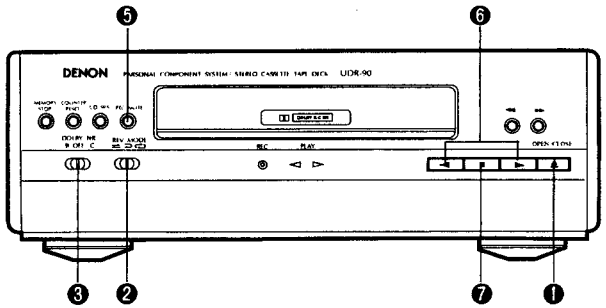
The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.

■ Music search display

During the music search operation, the number of selections to be skipped is indicated on the tape counter, and this number decreases each time a blank section between selections is detected (ex.: 3 → 2 → 1).

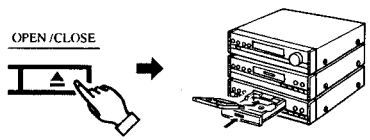
- When a previous selection is specified: P-03 ← Number of selections to be skipped
  Lights when moving to previous selections
- When a subsequent selection is specified: P-05 ← Number of selections to be skipped

10 RECORDING CASSETTE TAPES

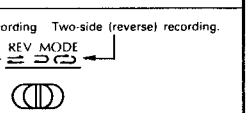


• The positions of the VOLUME and tone controls do not affect the sound being recorded.

1 Press the OPEN/CLOSE button ▲ and load the tape to which you will record.
Refer to Page 17.



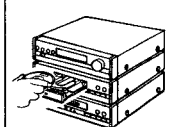
2 Set the REV MODE switch to ⇄ or ⊃.
Refer to Page 16.



3 Set the DOLBY NR switch.
Refer to Page 6 ❶.

Set to B or C to record with Dolby NR.

4

Recording from the radio	Recording from a AUX/DAT	Recording from a CD player
BAND Press the BAND selector button. ↓ Select the station you wish to record. (Refer to Page 9.)	FUNCTION Press the receiver's FUNCTION button and select AUX. ↓ Start playback on the DAT.	 Set the disc in the CD player. (Refer to Page 18.)

5 Press the REC MUTE button.

The REC (recording) indicator lights.

6 Press the ▶ or ◀ button. (Recording starts)

(5)

Press the CD SRS button. (recording starts.)

7 To stop recording, press the stop button.

* When the CD SRS button is pressed, a 7-second blank portion is automatically created before recording starts.

11 PLAYING CDs

Compact Discs

- Press the OPEN/CLOSE button (▲) once to open the disc try, once again to close it.
- The disc tray can also be closed by pressing the play (▶) button. When this is done, playback automatically starts from the first track on the disc (or if the tracks are programmed, the first programmed track).
- Load the disc with the label side facing up, being careful not to touch the disc surface.
- Load the disc with the disc tray open all the way.
- Set the disc securely in the tray guide at the center of the disc tray. To play an 8 cm disc, place the disc in the sunken part at the center of the disc tray.
- When the disc tray is closed, the disc turns automatically for several seconds, and the number of tracks and total playing time appear on the display.

COMPACT disc DIGITAL AUDIO

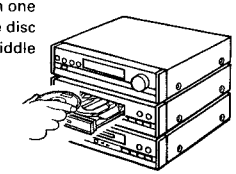
Only discs with this mark can be played.

- For CDVs, only the audio part is played (the video part is not played).

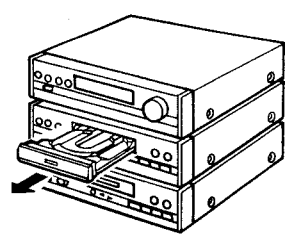
Disc	Remarks
CD	
CDV	Only the audio part is played.
CD single (8 cm)	

■ When removing the disc from its case:
As shown in the diagram, grasp the disc along the edges, gently press down on the hole in the middle with a finger, and lift the disc. It should come out easily.

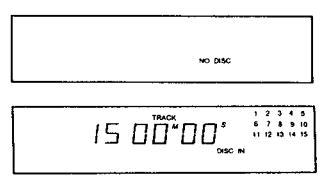
■ When setting the disc in the disc tray:
Always set the disc with the label side facing up. (Compact discs can only be played on one side). For 8 cm CDs, set the disc in the sunken part in the middle of the tray.



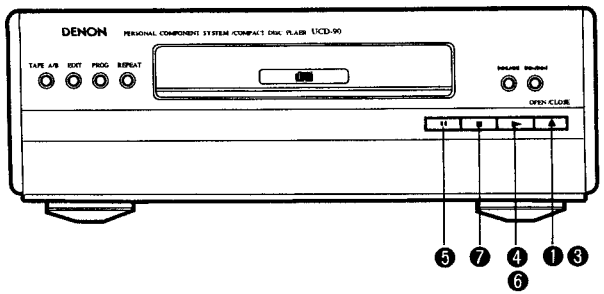
Handling the Disc Tray
Do not switch off the power or push or pull the disc tray when it is moving, since this may damage it.
If the cord of a set of headphones, etc., gets caught in the disc tray when it is closed, press the OPEN/CLOSE button (▲) again.
- Never set objects other than CDs in the disc tray, as this can cause damage.



NOTE:
"NO DISC" is displayed on the display window when no disc is loaded, when the disc is loaded upside-down, or when the disc is not properly loaded. Also, " 88.88. " may appear during playback of a CD if the disc is scratched or dirty. If this happens, the set will not operate when a normal operating button (other than the OPEN/CLOSE button) is pressed, so press the OPEN/CLOSE (▲) button, remove the disc, clean it as necessary, then press the PLAY (▶) button again.



Regular Play



Example: Playing a CD with 15 tracks and a total playing time of 62 minutes 03 seconds, starting from track 1

1	Press the POWER button of the receiver, then press the OPEN/CLOSE button.	OPEN/CLOSE The disc tray opens.	NO DISC
2	Set the CD in the disc tray. Refer to Page 18.		The display appears several seconds after the disc tray closes.
3	Press the OPEN/CLOSE button.	OPEN/CLOSE The disc tray closes.	TRACK 15 62'03" DISC IN
4	Press the PLAY button.	CD play starts.	TRACK 01 16'01" DISC IN

To stop play temporarily:

5	Press the PAUSE button.		"▶ PLAY" goes off and "II PAUSE" appears. CD play is paused at the point the button is pressed.

To resume CD play:

6	Press the PLAY button.		II PAUSE" goes off and "▶ PLAY" appears. CD play resumes from the point the pause button was pressed.

To stop CD play:

7	Press the STOP button.		TRACK 15 62'03" DISC IN

NOTE:

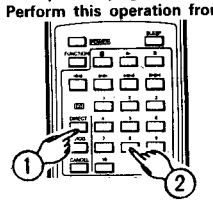
- "00" is displayed on the track number section of the display for several seconds after the disc is set, while the data on the number of tracks, playing time, etc., is being read from the disc. After this, the number of tracks and total playing time appear.

Various CD Play Functions

(Insert the disc before performing the following operations.)

❶Playing Certain Tracks ..... DIRECT SELECTION

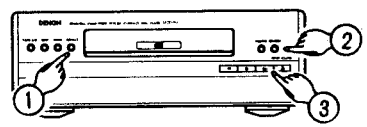
Example: Playing the 8th track
Perform this operation from the remote control unit.



① Press the DIRECT button.
② Press track button "8". "TRACK 8" appears on the display, and the 8th track begins playing.
- When the end of the track is reached, play continues on to the next track.

- For track numbers of 11 and higher, for example 15, press [+10] and [5].
  For track numbers of 20 and higher, for example 23, press [+10], [+10], and [3].
  For track number 20, press [+10] and [10].

❷Playing 1 Track Repeatedly ..... 1 TRACK REPEAT

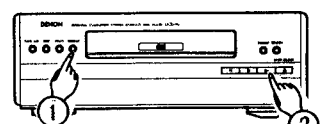


① Press the REPEAT button once.
② Press the ⏮ ◀◀ or ▶▶ ⏭ button, and select the desired track.
③ Press the play button (▶) to start play.

- When the specified track finishes playing, the pickup returns to the beginning of that track and play is repeated.
- If the REPEAT button is pressed once during play, the track will be played repeatedly.
- If the REPEAT button is pressed once during programmed play, the track will be played repeatedly.

* If the REPEAT button is pressed once while the disc is stopped, the "REPEAT 1" indicator lights and the 1 track repeat play mode is set.

❸Playing All Tracks Repeatedly ..... ALL TRACKS REPEAT



① Press the REPEAT button twice.
② Press the play button (▶) to start play.

- When the last track finishes playing, the pickup returns to the first track of the disc and play is repeated.
- If the REPEAT button is pressed twice during play, the disc will be played repeatedly.
- If the REPEAT button is pressed twice during programmed play, the program will be played repeatedly.

* If the REPEAT button is pressed twice while the disc is stopped, the "REPEAT ALL" indicator lights and the all tracks repeat play mode is set.

❹Playing a Specific Section Repeatedly ..... SECTION REPEAT

Example: The CD has a total of 15 tracks

1st time	(1) Press the REPEAT button during CD play. TRACK 03 REPEAT 1	"REPEAT 1" lights up, and only that track is played repeatedly, and that track number lights on the music calendar. * With a 1-track repeat of track 31 or higher, "TRACK No." flashes.
	(2) Press the REPEAT button before CD play. TRACK 15 REPEAT 1	"REPEAT 1" lights up, and the total number of tracks lights, and then ① the first track is repeated by pressing the play button ② when play is started by direct selection from the remote control or with the ⏭ or ⏮ button, only those selected tracks are played repeatedly.
2nd time	Press the REPEAT button before CD play or during CD play. REPEAT TRACK 03 REPEAT ALL	"REPEAT ALL" lights up, and the track numbers contained on the disc light up on the music calendar, and all tracks are played repeatedly.
3rd time	Press the REPEAT button during CD play. REPEAT REPEAT A-	"REPEAT A-" lights up. If nothing else is done, all tracks are played repeatedly.
4th time	Press the REPEAT button during CD play. REPEAT REPEAT A-B	"REPEAT A-B" lights up. The A-B section is played repeatedly.

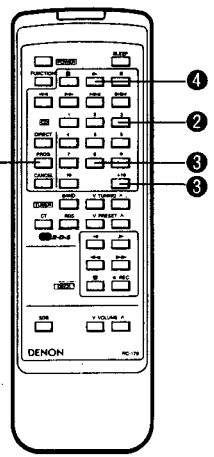
Pressing the REPEAT button once again returns the player to regular CD play.

❺Playing Certain Tracks in any Desired Order — PROGRAMMED SELECTION

(Perform this operation from the remote control unit.)

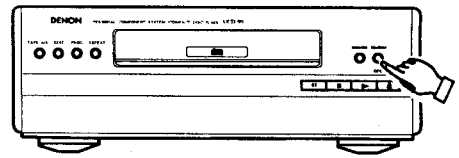
Example: Programming track 3 to play first, track 18 to play second, on a CD with 18 tracks and a total playing time of 62 minutes, 3 seconds

Setting and Playing the Program

1	Press the PROGRAM button.		
2	Set track 3 to play first.		After 2 seconds The display when track 3 is set to play first Time of first track: 8 minutes, 00 seconds
3	Set track 18 to play second.		After 2 seconds The display when track 18 is set to play second Total time of tracks 1 and 2: 16 minutes, 05 seconds
4	Press the play button.		The tracks start playing in the programmed order.

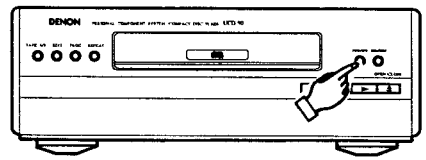
- The numbers of the programmed tracks go off once the tracks are played.
- The time display will read "— — M — — S" if a track number of 31 or higher is set in the program.
- When a program is set during CD play after a direct selection, the track currently playing is set as the first track in the program.
- Up to 3[illegible] tracks of your choice from among track numbers 1 through 99 can be programmed with this CD player.
- If you attempt to set a track number that is greater than the number of tracks on the disc, that track number will not be displayed when the buttons are pressed.
- Programming is also possible when the disc tray is open. In this case, track numbers greater than the number of tracks on the disc can be programmed, but these are ignored when the disc is played.
- There is a silent interval of 4 seconds between tracks. This is has been designed to create a blank section of 4 seconds between selections when recording programmed tracks onto tape.
- The entire program is cleared when the disc tray is opened (by pressing the ⏏ button).
- If you make a mistake when programming tracks, press the CANCEL button and program again. (Each press of the CANCEL button cancels the last track.)
- An A-B section repeat is not possible during programmed play.
- Other operations possible during programmed play:
  The quick search, pause, skip monitor, and other operations can be used during programmed play. To move to the beginning of the previous track with the quick search operation, press I◀◀ ◀◀ once, then once again while the time display reads " 00.00. ". To move to the beginning of the following track, press ▶▶ ▶▶I once, regardless of the time display.
- Perform programming and canceling in the stop mode.
- Programming is also possible in the same way using the PROG button on the CD player. (In this case, use the ▶▶ / ▶▶I button to select the track number, the PROG button as the memory button. In other words, first press the PROG button, next press the ▶▶ / ▶▶I button to select the track number, then press the PROG button again to set the track in the memory. For the second track as well, press the ▶▶ / ▶▶I button then the PROG button.)

❻Moving to the Next Track During CD Play — QUICK SEARCH



① Press the auto search forward button (▶▶ ▶▶I).
- Each press of the auto search forward button (▶▶ ▶▶I) moves the pickup to the beginning of following tracks.

❼Moving Back to the Beginning of the Current Track During CD Play — QUICK SEARCH

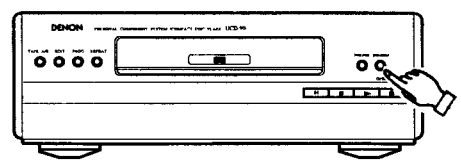


① Press the auto search backward button (I◀◀ ◀◀).
- Each press of the auto search backward button (I◀◀ ◀◀) during the search operation moves the pickup to the beginning of previous tracks.

❽Searching for Tracks While Listening to the Sound — SKIP MONITOR

- Use this to skip through a disc listening to the sound at high speed.
  This function is convenient when searching for a certain section within a long track.
- Use the skip monitor function to find the desired position, then release the search button to start regular playback from there.

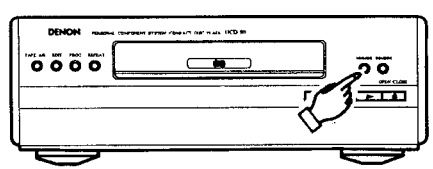
[1] Forward skip monitor



- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the end of the last track on the disc is reached while pressing the search button, (JJ) appears on the display and the skip monitor operation stops. To resume CD play, press the search backward button (I◀◀ ◀◀) until (JJ) switches to the track number, then perform a different operation.

① During CD play, press and hold in the forward search button (▶▶ ▶▶I) to skip forward while listening to the sound.

[2] Backward skip monitor



- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the beginning of the first track on the disc is reached while pressing the search button, (CC) appears on the display and the skip monitor operation stops. To resume CD play, press the search forward button (▶▶ ▶▶I) until (CC) switches to the track number, then perform a different operation.

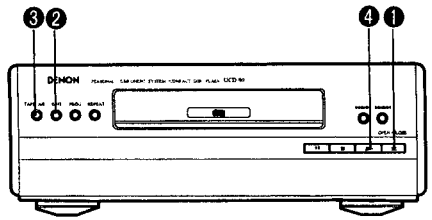
① During CD play, press and hold in the backward search button (I◀◀ ◀◀) to skip backward while listening to the sound.

If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

Edited Recording onto Sides A and B of a Tape (EDIT)

Editing is possible with CDs containing up to 30 tracks.

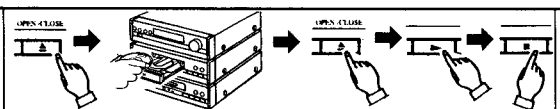
Before starting the edited recording operation, load the cassette tape to which you will record into deck with side A facing up.
The leader tape is automatically taken up before recording starts.
(Set the REV MODE switch to the ⇄ position.)



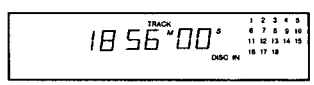
❶Automatic Edited Recording ..... **RECORDING IN THE SAME ORDER AS ON THE DISC**

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1



Press the OPEN/CLOSE button. → Set the disc. → Press the OPEN/CLOSE button. → Press the play button and set the function to CD. → Press the stop button.

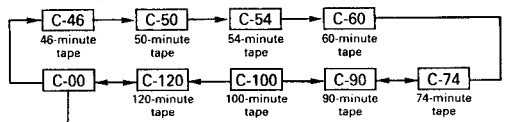


NOTE:

- With edited recording, side B of the tape will be recorded automatically even when the REV MODE switch of the deck is set to the ⇄ position.
- During edited recording, only the following buttons will function: the stop button of the CD or the OPEN/CLOSE button, and the stop button of the deck.
- When using a recorded tape for edited recording, the tape should be erased before use, since when the tape is longer than the set time, an unrecorded section of side B will remain after the tape stops.
  When a tape which has been recorded with this system is played back, there will be 4-second blank portions between tracks (for making it easy to reach the beginning of a track). This will differ from the actual silent portions between the tracks on the disc, and so there will be some error in the actual remaining time of the tape and the displayed time.

2

Press the EDIT button to set the tape length.
Press the EDIT button four times when using a 60-minute (C 60) tape.
(The tape length is to total time of sides A and B.)
The display changes as follows each time the EDIT button is pressed.
(When the tape time has already been set, the display will change in order starting at that time each time the EDIT button is pressed.)



The desired recording time can be set when this is displayed.

↓

Example: For a 36-minute tape, use the ⏮◀◀ or ▶▶⏭ button to set 36.
To set the tape length using the remote control unit, use the number buttons. For example, in the case of a 30-minute tape, press +10 twice and press 10.

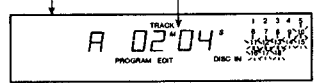
↓

If you make a mistake, press the EDIT button to display "C-00", then start over again.

Setting the desired recording time (Method 2)
Select a tape length close to the desired time, then make a fine adjustment using the ⏮◀◀ or ▶▶⏭ button.
For example, to set 51 minutes, select C-50, then press the ▶▶⏭ button once to set C-51.

"EDIT" flashes for 2 seconds

2 minutes 40 seconds extra on side A

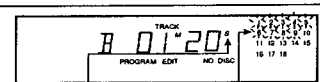


Tracks for side A light up. Tracks for side B flash.
(Tracks 1 through 9 are recorded on side A.)
(Tracks 10 through 18 are recorded on side B.)

3

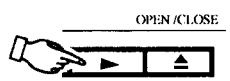
A/B button is pressed.
(Use this to check the extra time on side B.)

The display changes between sides A and B each time the TAPE



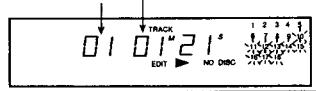
Tracks for side A flash. Tracks for side B light up.
1 minute 20 seconds extra on side B.

4



Press the play button.

Track number — Elapsed time



- Note that in some cases, even if the tape is longer than the total playing time on the disc, it may not be possible to record all the tracks onto the tape, since they are divided onto sides A and B. In such cases, the OVER indicator flashes.

❷Programmed Edited Recording ..... **RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER**

① Follow the instructions under "PROGRAMMED SELECTION" on Page 20 to program the tracks.
② Perform steps 2 through 4 under the aforementioned "Automatic Edited Recording".

Programmed CD Play Using the Search Buttons (⏮◀◀ ▶▶⏭)

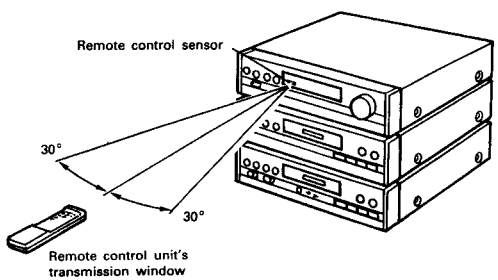
Pressing the PROGRAM button of the remote control unit will light up the "PROGRAM" indicator. When the disc is stopped, programming can be done with the search buttons (⏮◀◀ ▶▶⏭) on the CD player or with the search buttons (⏮◀◀ ▶▶⏭) on the remote control unit.

- Select the tracks with the search buttons, then press the PROGRAM button to program them.
- The search buttons (◀◀ ▶▶) can be used to change the track numbers continuously.
- After the track numbers have been selected with the search buttons, if the play button is pressed to start CD play before the PROGRAM button is pressed, the last track of the program set up to this point will be played.
  In this case, the tracks selected with the search buttons will not be programmed.

12 REMOTE CONTROL UNIT

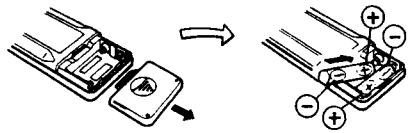
Cautions on Use

1. The D-90 is supplied with a remote control unit (RC-170) for system control.
2. Replace the batteries with new ones when the transmission distance possible with the remote control unit shortens.
3. For longer battery life, remove the batteries when not using the remote control unit for long periods.
4. When replacing batteries, use two new batteries. Never use an old battery with a new one.
5. Do not use two different types of batteries.
6. Do not heat batteries or take them apart.
7. Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures.
8. The remote control sensor is located on the receiver. Point the remote control unit at the sensor, then press the buttons for the desired operation.
9. Operate the remote control unit within the range illustrated in the diagram.

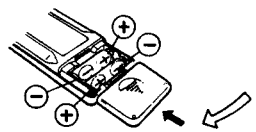


Inserting the Batteries

① Open the battery case lid on the back of the remote control unit.



② Insert the two batteries (R03/AAA) in the proper direction.



③ Set the battery case lid back in place.

▦ appears at the upper left corner of the receiver display when a signal is received.

- The remote control unit can be used at a distance of about 7 meters from the remote control sensor, but this distance will be shorter if there are obstacles in the way or if the remote control is operated from an angle.

10. Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
11. If ▦ appears on the receiver display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
12. When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.

Button Names and Functions

FUNCTION (input switching) button

Switches the function TUNER, TAPE, CD, AUX and PHONO.

POWER

Press this to switch on the power for the entire system or set the system to standby.

Operating the CD Player

Pause button (II)
Press to temporarily stop CD play. Press the play button ▶ to resume play.

Stop button (■)
Press to stop CD play.

Play button (▶)
Press to start CD play.

Manual search backward button (◀◀)
Manual search forward button (▶▶)
Press these to quickly move backward or forward.

Backward skip monitor button (I◀◀)
Press during CD play to go back to the beginning of that track. Press the button again within 0.5 seconds to go back to the beginning of the previous track.

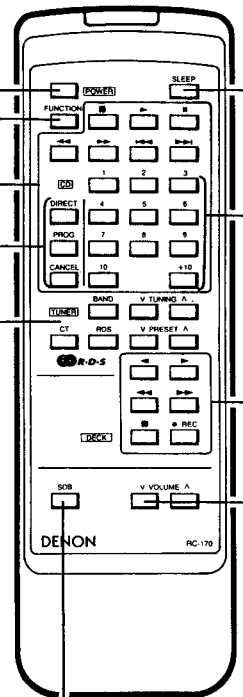
Forward skip monitor button (▶▶I)
Press during CD play to go forward to the beginning of the next track. Press the button again to go forward to the beginning of the track two tracks ahead.

CD Play

DIRECT button
Press for direct track selection of CD player.

PROGRAM button
Press for programmed selection of CD player.

CANCEL button
Press once during programming to cancel the last track programmed.



SLEEP

Press this to set the sleep timer.

Number buttons

After pressing TUNER, these buttons call up the preset stations. When used with CD play, after pressing DIRECT or PROGRAM, these buttons specify the tracks to be played.

Operating the Cassette Decks

Stop button (■)
Press this to stop the tape deck.

Forward play button (▶)
Press this to play back or record in the forward direction.

Reverse play button (◀)
Press this to play back or record in the reverse direction.

● REC button (recording button)
To set the recording mode when in the stop mode, press this button, then press either the "▶" or the "◀" button. When pressed during the recording or recording pause mode, a blank section of approximately 5 seconds is created on the tape, after which the deck is set to the recording pause mode.

Rewind button (◀◀)
Press this to rewind the tape.

Fast-forward button (▶▶)
Press this to fast-forward the tape.

SDB (Super Dynamic Bass)

Press this button for more powerful bass sound. Press again to return to the original setting.

VOLUME

Adjusts the volume.
Press V to lower the volume, and Λ to raise it.

TUNER

- **CT (Clock Time) button**
  When the FM band has been set, a single press of this button will cause the clock display to appear for 2 seconds.
  Pressing the button again while the clock is displayed, enables the clock to be matched to the time of the RDS broadcast time service.
- Some stations which provide RDS broadcasts do not broadcast CT signals, in which case the time display cannot be corrected by pressing the CT button.

Press this button to listen to the preset stations.

- **BAND button**
  Use this to select the FM or AM band.
  When this button and number button is pressed in the standby condition, the power is automatically switched on.
- **TUNING buttons**
  Use these to tune in FM or AM stations.
- **PRESET buttons**
  Use these to select preset stations.
  When this button is pressed in the standby condition, the power is automatically switched on.
- **RDS (Radio Data System) button**
  This button is used for the RDS search, PTY search and TP search operations.

13 IMPORTANT INFORMATION

• Head Cleaning

After the cassette deck has been used for a while, powder from the tapes and dirt adhere to the head and lower the sound quality.
Use a head cleaning cassette tape to clean.

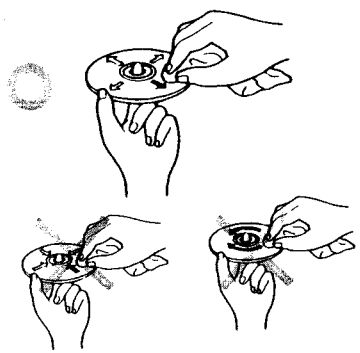
NOTE:
Some of the cleaning sets on the market have a strong polishing effect which can damage the head.

• Head Demagnetizing

The heads become magnetized after the deck has been used over a long period of time or if the heads are exposed to a magnetic field. This results in noise and reduced treble. In addition, there may be a reduction of the treble range of recorded tapes as well as noise produced on these tapes. When the heads become magnetized, use one of the cassette tape head demagnetizers (erasers) available on the market to demagnetize the heads.

- For details, read the operating instructions of the demagnetizer.

• Disc Cleaning



Dust, fingerprints, or spittle on the disc can cause noise or skipping.
If the disc is dirty or if the player does not work properly, clean the disc as follows:

- Hold the disc as shown in the diagram, with the signal surface facing up (and the labelled side facing down).
- Using a soft cloth, wipe the disc gently from the inside straight towards the edges (as shown by the arrows).

- Do not wipe from the edges towards the center, or around the disc as you would wipe records.
- Do not use hard cloths or rub the disc forcefully, since the signal surface is susceptible to scratches.

Never use the following to clean discs:

- Solvents such as benzene or alcohol
- Cleaners containing abrasives
- Record sprays or cleaners
- Anti-static products

14 SPECIFICATIONS

■ Receiver (UDRA-90)

• Tuner

Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB)
FM Stereo Separation:	40 dB (1 kHz)

• Amplifier

Rated Output Power:	30 W + 30 W (40 Hz to 20 kHz, 8 ohm)
Jacks:	3.5 mm headphone jack
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PHONO: Input jacks AUX/DAT: Input jacks, recording output jacks PROCESSOR: Processor input/output jacks
Dimensions (max.):	272 (W) × 97 (H) × 313 (D) mm (10-45/64" × 3-13/16" × 12-21/64")
Weight:	6.0 kg (13 lbs 4 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	90 W

■ CD Player (UCD-90)

Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	272 (W) × 97 (H) × 313 (D) mm (10-45/64" × 3-13/16" × 12-21/64")
Weight:	2.7 kg (5 lbs 15 oz)

■ Cassette Deck (UDR-90)

Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome and metal tapes
Dimensions (max.):	272 (W) × 97 (H) × 305 (D) mm (10-45/64" × 3-13/16" × 12-1/64")
Weight:	3.0 kg (6 lbs 10 oz)

■ Remote Control Unit (RC-170)

Type:	Infrared pulse
Number of Buttons:	40
Dimensions (max.):	65 (W) × 208 (H) × 16 (D) mm (2-9/16" × 8-3/16" × 5/9")
Weight:	130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers.
(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

15 TROUBLESHOOTING

1. Check that the connections are proper.
2. Check that you are operating the system according to the instructions in the manual.

Check the following table if the system does not seem to be working properly.
If the problem is not solved after checking these points carefully, the system may be malfunctioning. Switch off the power and contact your store of purchase.

	Symptom	Cause	Measures	Page
Common	Power does not come on when POWER button pressed.	• Power cord not plugged into outlet.	• Plug cord into outlet properly.	5
	No sound produced from speakers.	• VOLUME control set to minimum. • Headphones are plugged in. • Speaker cables not connected to speaker terminals. • The Relay is affected by clicking noise at intervals.	• Turn VOLUME control clockwise ( ). • Disconnect headphones. • Connect speaker cables properly. • Short-circuit with connection cord near speaker terminal. Check connection cord again.	6 6 5 5
	Treble not produced. Orientation of sound field not clear.	• Speaker polarities (+ and −) not matched.	• Connect speaker cables properly.	5
	Source other than the desired one is heard.	• Function selector button not set properly.	• Set to desired function.	6
Deck	Cannot record when REC MUTE button pressed.	• No cassette tape loaded. • Accidental erasure prevention tabs of cassette broken off.	• Load tape. • Apply cellophane tape over holes.	17 16
	Sound is interrupted during playback and recording, or treble sound is low.	• Head dirty. • Tape stretched.	• Clean. • Replace tape.	23 –
	Wow (fluctuation) is heavy during playback and recording.	• Capstans and pinch rollers dirty.	• Clean.	23
	Buzzing noise heard during playback.	• Noise from TV. • (Some TVs produce noise.)	• Separate TV from system. • Turn off TV.	– –
Receiver	Hissing noise heard during FM reception.	• Antenna not pointed in proper direction. • Signals weak.	• Change direction of antenna. • Install outdoor antenna.	4 4
	Hissing or scratchy noise heard during AM reception.	• Noise from TV, etc., or interference from • other stations. •	• Turn off TV. • Change position of loop antenna. • Install outdoor antenna.	– – 4
	Hum noise heard during AM reception.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction. • Install outdoor antenna.	5 4
CD Player	Disc loaded but total number of tracks not displayed.	• Disc loaded upside-down. • Disc dirty. • Non-standard disc loaded.	• Reload disc. • Clean disc. • Replace with standard disc.	18 23 18
	Operation not performed when buttons pressed, or playback stops in middle of track.	• Disc loaded upside-down. • Foreign object in disc holder. • Disc dirty. • Disc scratched.	• Reload disc. • Remove disc and remove foreign object. • Clean disc. • Replace with non-scratched disc.	18 18 23 –
	Sound skips.	• Dust, fingerprints, or spittle on disc. • Disc scratched. • Player set in shaky, unstable place.	• Clean disc. • Replace with non-scratched disc. • Set player in stable place.	23 – –
	Buzzing noise mixed in with CD sound.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction.	5

Normal operation may not be possible if there is dirt or other substances on the surface of the internal objective lens or sensor.
These parts must be cleaned periodically depending on the place of installation.
For details, contact your store of purchase.

Avoid using ultrasonic humidifiers nearby.
If ultrasonic humidifiers are used nearby, the calcium, etc., included in the water may be scattered into the air, causing white dust to accumulate on the surface of the objective lens or sensor, resulting in improper operation.

Dew (Condensation) Phenomenon

Dew (water droplets) may form on the lens of the internal optical system or on the disc, or on the rotating parts of the tape deck in situations such as the following:

- Soon after a heater is put on.
- When the set is placed in a steamy or damp room.
- When the set is moved from a cold place to a warm room.

When Condensation Forms

The signals of the disc may not be read and this product will not operate properly. To remove the condensation, take out the disc and switch on the power. The condensation will evaporate within 1 hour and the set will operate normally.

This system consists of precision components using microprocessors. Avoid using it in places where there is much external noise. If used is such places, the system may not operate properly, but this is not a problem with the system. If the system does not operate properly, try performing the desired operation again.